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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/992,387

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Anthony L. Coyle

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04/20/2006

TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/992,387

Applicant(s)

COYLE ET AL.

Examiner

Monica Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the response filed February 1, 2006.

Response to Arguments

2. Applicant's arguments with respect to claims 25-31 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 25-31 are rejected under 35 U.S.C. 103(a) as obvious over Miles (U.S. Patent No. 5,535,101) in view of Taniguchi et al. (U.S. Patent No. 5,953,592).

In regards to claim 25, Miles et al. ("Miles") discloses the following:

- a) an integrated circuit chip (10) having a plurality of contact pads (14) (For Example: See Figure 2);
- b) a single-layered insulating interposer (16) film having a top surface and a bottom surface (For Example: See Figure 2);
- c) an electrically conductive pattern (20) formed of a conductive film (20) disposed on the top surface of the insulating film (For Example: See Figure 2);
- d) vias (22) extending through the interposer filled with conductive material, contacting the conductive pattern and forming exit ports on the bottom surface (For Example: See Figure 2); and
- e) electrical coupling members (26) disposed between the contact pads and conductive lines, connecting the chip to the interposer (For Example: See Figure 2).

In regards to claim 25, Miles fails to disclose the following:

a) the bottom surface immediately adjacent the exit ports free of a conductive pattern and contact pad.

However, Taniguchi et al. ("Taniguchi") discloses that the bottom surface immediately adjacent the exit ports is free of a conductive pattern and contact pad (For Example: See Figure 9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Miles to include that the bottom surface immediately adjacent the exit ports is free of a conductive pattern and contact pad as disclosed in Taniguchi because it aids in protecting the device from bulging (For Example: See Column 2 Lines 15-20).

Additionally, since Miles and Taniguchi are both from the same field of endeavor, the purpose disclosed by Taniguchi would have been recognized in the pertinent art of Miles.

Finally, the following limitation makes it a product by process claim: a) "thermo-compressed." The MPEP § 2113, states, "Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

A "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289

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(CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

In regards to claim 26, Miles discloses the following:

- a) solder balls (27) attached to the exit ports (For Example: See Figure 2).

In regards to claim 27, Miles discloses the following:

- a) encapsulating material (30) the integrated circuit chip (For Example: See Figure 2).

In regards to claim 28, Miles discloses the following:

- a) a single-layered insulating interposer (16) film having a top surface and a bottom surface (For Example: See Figure 2);
- b) an electrically conductive pattern formed of a conductive film (20) disposed on the top surface of the insulating film (For Example: See Figure 2); and
- c) vias (22) extending through the interposer filled with conductive material, contacting the conductive pattern and forming exit ports on the bottom surface (For Example: See Figure 2).

In regards to claim 28, Miles fails to disclose the following:

- a) the bottom surface immediately adjacent the exit ports free of a conductive pattern and contact pad.

However, Taniguchi discloses that the bottom surface immediately adjacent the exit ports is free of a conductive pattern and contact pad (For Example: See Figure 9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Miles to include that the bottom surface immediately adjacent the exit

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ports is free of a conductive pattern and contact pad as disclosed in Taniguchi because it aids in protecting the device from bulging (For Example: See Column 2 Lines 15-20).

Additionally, since Miles and Taniguchi are both from the same field of endeavor, the purpose disclosed by Taniguchi would have been recognized in the pertinent art of Miles.

In regards to claim 29, Miles discloses the following:

a) solder balls (27) attached to the exit ports (For Example: See Figure 2).

In regards to claim 30, Miles discloses the following:

a) the conductive pattern includes attachment sites corresponding to contact pads on the integrated circuit chip (For Example: See Figure 1, Figure 2, Column 3 Lines 35-46 and Column 4 Lines 7-12).

In regards to claim 31, Miles discloses the following:

a) an integrated chip (10) attached to the substrate (For Example: See Figure 2).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular and after final communications.

ML
April 5, 2006

